

What is claimed is:

1. A process for labeling biomolecules bearing free reactive groups with a label compound which reacts to form a covalent bond, characterized in that solutions of both compounds are fed in defined quantitative flow rates to a micromixer, preferably a static micromixer, and mixed intensively there, then the reaction mixture is optionally fed into a delay structure, and remains there for a time predetermined by the volume of the delay structure and the flow rate of the reaction mixture, and the reaction is terminated after a time predefined by the reaction conditions.
- 5 2. The process as claimed in claim 1, characterized in that the free reactive groups are amino, thiol, alcohol, aldehyde/ketone and/or carboxylic acid groups.
3. The process according to claims 1 and/or 2, characterized in that the biomolecules are proteins, nucleic acids and/or saccharides.
4. The process as claimed in one or more of claims 1 to 3, characterized in that a micromixer with channel widths of less than 100 μm is used.
- 15 5. The process as claimed in one or more of claims 1 to 4, characterized in that the micromixer used is a multilamination mixer or a split and recombine mixer.
6. The process as claimed in one or more of claims 1 to 5, characterized in that the delay structure used is a capillary of predefined volume or another volume with uniform flow or an arrangement with uniform flow.
- 20 7. The process as claimed in one or more of claims 1 to 6, characterized in that the reaction mixture is pumped in circulation in the delay structure used, a micromixer optionally being inserted into the circuit.
8. An apparatus for performing the process as claimed in one or more of claims 1 to 7.